

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington DC 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of:

Petition for Rulemaking To Allocate
the 5.1 - 5.35 GHz Band and Adopt
Service Rules for a Shared Unlicensed
Personal Radio Network

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) RM-8648
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Petition for Rulemaking to
Allocate 5.15 -5.30 GHz and
5.725 - 5.875 GHz Bands
to Establish a Wireless Component
of the National Information
Infrastructure

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) RM-8653
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Hewlett-Packard Company

Timothy Wilkinson
Hewlett-Packard Laboratories

Cynthia Johnson
Government Affairs Manager
900 17th Street, NW
Suite 1100
Washington, DC 20006
(202) 884-7015

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COMMENTS OF THE HEWLETT-PACKARD COMPANY
IN SUPPORT OF A RULEMAKING
TO ALLOCATE SPECTRUM IN THE 5 GHz BAND FOR UNLICENSED USES

Apple Computer, Inc. ("Apple") and the Wireless Information Networks Forum ("WINForum") each recently submitted petitions requesting the Federal Communications Commission ("FCC" or "Commission") to allocate spectrum in the 5 GHz band for new unlicensed uses. Hewlett-Packard Company ("HP") submits these comments to express support for the initiation of a rulemaking process by the Federal Communications Commission ("FCC" or "Commission") to allocate these frequencies for unlicensed commercial purposes.

The petitions submitted by WINForum and Apple reflect strong agreement in the need for a 5 GHz allocation. They also agree on the need to have a recognized independent group develop operational rules that would ensure against radio interference and promote a spectrum etiquette. Rather than supporting either petition in its entirety, HP urges the Commission to move expeditiously toward a rulemaking process that builds on the consensus of the two petitions. Furthermore, we believe the Commission should not attempt to resolve all differences in the petitions prior to issuing an NPRM. Rather, the rulemaking process should be used to seek comment from potential users of the 5 GHz band on specific approaches to allocation and rules of operation.

I. **SPECTRUM FOR UNLICENSED USES IS ESSENTIAL IN A RANGE OF FREQUENCIES IN ORDER TO DEVELOP FULLY THE ADVANTAGES OF EXISTING AND FUTURE TECHNOLOGIES**

The merging of measurement, computing and communication technologies is revolutionizing the way people gather and share information, and the applications that are available today are only the beginning of what will be realized in the near future. We believe that consumers will increasingly demand a variety of choices to meet many different communications needs. We also expect that unlicensed wireless devices will play a very important role in providing solutions to many communications problems. Different frequency ranges, each with its own technical characteristics, will be needed to provide the widest possible mix of capabilities for consumers.

This is why HP believes that allocation of spectrum in the 5 GHz range would be complementary, rather than redundant, to recent and pending FCC decisions to allocate spectrum for unlicensed uses.

la. **Allocation of the Frequencies Above 40 GHz for Unlicensed Uses is Critically Important and Must continue as a priority, however additional bandwidth at 5 GHz Is Necessary to Meet Different Needs**

HP has been particularly supportive of a proposal currently being considered by the FCC, to develop the use of millimeter wave technology in the frequencies above 40 GHz. HP applauds the efforts of the FCC, and particularly supports the allocation of the oxygen absorption band between 56-64 GHz, including the 5 GHz between 59-64 GHz for

short-range unlicensed uses. The company urges the FCC to pursue swift resolution of this proceeding and to treat the allocation of 59-64 GHz as a top priority.

However, HP recognizes that the allocation of the millimeter wave bands alone will not serve all potential unlicensed uses. The frequencies between 56 and 64 GHz have unique natural properties, giving this band is an almost perfect suitability for short-range communications of many types. In the information technology field, HP believes that millimeter wave technology, using the frequencies at 59-64 GHz, will play a particularly important role in wireless interconnects and in high bandwidth data delivery.

The oxygen absorption, which is one of the very strengths of millimeter wave technology, however, makes 59-64 GHz unsuitable for long range communications. In contrast, the frequencies at 5 GHz have much longer range propagation characteristics, and therefore, can provide important capabilities for medium-range applications, as compared to millimeter wave frequencies. This is particularly important at the early stage of global information infrastructure development because an extensive broadband wired infrastructure has yet to be deployed.

Use of the 18 GHz band for unlicensed services has also been discussed by some as a possible option to substitute for an allocation of the 5 GHz band. However, this does not seem to be a viable solution, as the 18 GHz band is subject to licensing requirements, and only a 20 MHz frequency pair is available to each licensee. Furthermore, there is

only 100 MHz of spectrum available at 18 GHz which is insufficient to meet the anticipated unlicensed needs that could make use of the 5 GHz band.

II. INTERNATIONAL DEVICE AND SYSTEM COMPATIBILITY IS CRITICAL TO ALLOW U.S. COMPANIES TO DEPLOY NEW PRODUCTS IN ALL MAJOR MARKETS

The 5.15-5.25 GHz band was originally set aside for an international microwave landing system. However, in 1994, the U.S. canceled plans to develop this system, in favor of a Global Positioning Satellite System ("GPS")¹. This potentially frees this important band for other uses, and presents the United States with a unique opportunity to support American technological leadership. Europe is moving forward in making the 5.15-5.3 GHz band available for commercial purposes, and the U.S. must not miss this opportunity to keep pace.

Furthermore, the European Telecommunications Standards Institute ("ETSI") has developed operational rules for use of these frequencies under the High Performance Radio LAN ("HIPERLAN"), a process in which U.S. companies have also participated. It should be noted that the operational rules have not yet been validated and, in fact, could still be amended by new proposals. However, HP strongly believes that because Europe is farther along than the U.S. in the process of developing service rules, HIPERLAN should

1. See, e.g., "FAA Cancels MLS in Favor of GPS," Aviation Week and Space Technology, Vol. 140, No. 24, at 33.

serve as a reference model to whatever rules are developed in the U.S. to ensure strong compatibility.

Global companies have an important need to ensure that any one product can be designed, marketed, and most importantly, used by the consumer in all countries around the world.

Furthermore, the practical reality is that US-based companies may invest in technologies to develop products for this band only when there is some certainty that the same frequencies will be available under compatible rules in major marketplaces, such as Europe and the U.S.

III. SPECTRUM SHARING PLANS SHOULD BE DEVELOPED IN A CONSENSUS PROCESS BY INDUSTRY EXPERTS

HP believes the FCC plays an instrumental role in not only allocating spectrum, but also in developing a general framework for the use of the band and providing protection against interference from incompatible uses of the band. However, it is our belief that specific spectrum sharing methods must be developed through a consensus process by industry experts, and that this would best be accomplished through an open forum involving all interested and committed parties from industry, managed by a recognized standards body. We believe that the FCC should articulate in the rulemaking process its

recognition of the need for operational rules that provide protection against interference; that such rules be developed by industry, and that international compatibility is critical. Furthermore, the FCC should hold industry accountable for the development of such rules.

IV. CONCLUSION

HP strongly believes that allocation of the 5 GHz band for unlicensed uses is an important step for the U.S. to take toward development of a true global information infrastructure, and we encourage the FCC to initiate a rulemaking process as quickly as is practicable.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Cynthia Johnson", is written over a horizontal line.

Cynthia Johnson
Government Affairs Manager
Hewlett-Packard Company
900 17th Street, N.W., Suite 1100
Washington, D.C. 20006